

A Potential Company or Not: the Analysis of Tesla

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Abstract. Tesla is one of the most creative new-energy corporations in vehicle industry all around the world. In order to know about the company, even the whole industry, I regard financial analysis as a significant method. This article uses some concepts and data in financial accounting to analyze the basic financial situation of Tesla, its strengths and weaknesses, as well as the risk from the improper cost control, and then give some suggestions to the financial aspects of company. The author will also consider the most outstanding recent actions taken by the company, especially a great merge of SolarCity, which hugely affected the revenues, the profits, and the stock prices of the whole company.

1. Introduction

Tesla, founded in 2003, is an American Corporation that operates in car and energy area, which dedicates in marketing and retailing electric vehicles, solar panels, and energy-saving equipment. Nowadays, because more and more people are paying attention to environmental-friendly products, Tesla starts to come to the front of the public as well as the vehicle industry. And its financial situation interests researchers from both commercial and academic fields. In this article, the author will use both direct and indirect data which are calculated from the initial direct data. When these indirect data are used, there will be declaration in in-text citation.

2. Analysis of the financial situation

2.1 Financial Analysis

First of all, let's look at the total revenue of the company. We can easily calculate the growth rates of each year. They are 58.85% from year 2013 to 2014, 26.50% from year 2014 to 2015, 73.01% from year 2015 to 2016, and 67.98% from year 2016 to 2017. The growth rates are all positive, so that we could say the company is selling more and more products per years although the trend is not so clear. We can see that the growth rate dropped more than a half between year 2013 to 2014 and year 2014 to 2015. However, from year 2015 to 2016, the growth rate boomed into 73.01% and from year 2016 to 2017 it almost maintains that height. ("Tesla Inc. 10-K Annual Report", 2017)

Table 1. Total revenues of each year from year 2013 to 2017

Consolidated Statements of Operations Data:	Year Ended December 31,				
	2017	2016 (1)	2015	2014	2013
Total revenues	\$ 11,758,751	\$ 7,000,132	\$ 4,046,025	\$ 3,198,356	\$ 2,013,496

When we look at the stock of the company, we might get some clue. The price of the stock increased a lot at the end of year 2013 as well as the beginning of year 2014. And then at the end of year 2014, the price of the stock was only half of previous. In the middle of the year 2015, the price came back to the peak and then started to drop and reached the lowest point at the beginning of year 2016. In year 2016, the price was constantly dropping and in year 2017 the price was constantly increasing to a new height. ("Stock Price", 2018)



Fig. 1. Stock price from year 2013 to 2017

Next, we could look at the liabilities of the company from year 2016 to 2017. The liabilities increased 37% from year 2016 to 2017. We can see that the company was not so rushed to pay the debt. On the contrast, it increased their liabilities so it can have more assets to focus on developing the company.

Table 2. Total liabilities of year 2016 and 2017

	2016	2017
Total Liabilities	\$23,022,980.00	\$22,664,076.00

Final, we can easily calculate debt-to-asset, asset turnover rate and the net profit margin rate to see the performance of the company. The debt-to-asset are almost the same in the five years which included a slight decreasing in year 2016. Asset turnover rate was 0 in year 2013 and reached a peak in year 2014 at a value of 0.21. Then, the rate was decreasing constantly. Net margin profit rate was increasing from year 2013 to 2015. However, there was a drop in year 2016. It is not hard for us to see that year 2016 is a special year.

Table 3. Calculated financial data each year from year 2013 to 2017

Tesla Corporation					
	2013	2014	2015	2016	2017
Debt-to-Asset	0.73	0.83	0.86	0.74	0.8
Asset turnover ratio	0	0.21	0.13	0.1	0.088
Net Profit margin Ratio	-0.162	-0.334	-0.95	-0.43	-0.87

2.2 Risk Analysis

2.2.1 Terrible cost control

As a vehicle company who is researching and developing new product and is planning to achieve volume production, it is common that they will have a great investment in the cost of research and raw material. But as a matter of fact, the cost of input almost doubled in 2014 to 2016 and almost triple in the research and development area as 147%. However, at the same time, invest in the cost of sales is relatively slow as 74% which is half of the research part (“Tesla Inc. 10-K Annual Report”, 2017).

Table 4. Costs each year from year 2014 to 2016

	Year Ended December 31,		
	2016	2015	2014
Cost of sales	\$ 30,400	\$ 19,244	\$ 17,454
Research and development	154,632	89,309	62,601
Selling, general and administrative	149,193	89,446	76,441
Total	\$ 334,225	\$ 197,999	\$ 156,496

“Tesla spends about one-fourth as much on CapEx as General Motors Company, despite the fact that GM is more than 20 times as large.” (Ross, 2018). It seems like the cost is uncommonly high compared with other companies in the same industry. And it may affect the revenue and net income as there are few sales because of the high price and high cost, also company may can’t afford the high cost anymore before it has success in new model development.

From the form 10-K of Tesla in 2016 we saw the proof. “We may be unable to meet our growing vehicle production and delivery plans, both of which could harm our business and prospects.” The great investment does not fix the problem, Tesla is still worried about the volume production trapped by the producing technology according to the 10-K form in 2016 and sees it as an important risk factor. In production plan in model 3, they mention two key assumptions to make it a success as “build and build and equip a new dedicated final assembly line” and “expend Gigafactory 1” which represents a huge cost. (“Tesla Inc. 10-K Annual Report”, 2017)

2.2.2 Increasing long term debt and negative income growth

“We are significantly dependent upon revenue generated from the sale of a limited fleet of electric vehicles, which currently includes the Model S and Model X and which will also include Model 3 in the near term.” --- ---Tesla Inc. 10-K Annual Report (2017)

Table 5. Financial data of each year from 2012 to 2017

	2012	2013	2014	2015	2016	2017
Change in Long-Term Debt	21.7M	1.69B	683.94M	1.72B	3.39B	
Issuance of Long-Term Debt	660M	2.3B	887.72M	3.62B	7.65B	
Reduction in Long-Term Debt	(638.3M)	(614.61M)	(203.78M)	(1.9B)	(4.26B)	
Free Cash Flow	(6.23M)	(1.03B)	(2.16B)	(1.56B)	(4.14B)	
Free Cash Flow Growth	-	-16388.31%	-110.21%	27.56%	-164.78%	
Net Income		(74.01M)	(294.04M)	(888.66M)	(674.91M)	(1.96B)
Net Income Growth		-	-2.9728	-2.0223	0.2405	-1.9061

There are long-term liabilities growing significantly year after year while the net income largely decreased. We can see in the 10-K form in 2016 that the too long early-stage investment seems to destroy the balance of the financial functioning of Tesla. (“Tesla Inc. 10-K Annual Report”, 2017) The ability to pay the debt is decreasing and Model 3 still “requires significant investment prior to commercial introduction, and there is no guarantee that it will be commercially successful.” (“Tesla Inc. 10-K Annual Report”, 2017)

Table 6. Total long-term liabilities of 2015 and 2016

	December 31, 2016	December 31, 2015
Accrued warranty reserve, net of current portion	\$ 149,858	\$ 117,057
Build-to-suit lease liability, net of current portion	1,323,293	201,389
Deferred rent expense	36,966	17,342
Financing obligation, net of current portion	84,360	—
Liability for receipts from an investor	76,828	—
Other noncurrent liabilities	220,144	29,188
Total long-term liabilities	\$ 1,891,449	\$ 364,976

The best way is making a profit with the new model invested, but the difficulties in producing have not been solved yet. That means there will be not consumers to provide Tesla cash for there will be no “new and improved model” they are interested in, which rely on the development a lot. Does not risky that if the Tesla does not make a change for this situation with great cost and little income meanwhile. The high investment represents a high risk as well, investors like it only if there is pay off on the other end.

3. Advice

From the risk analysis part above, we saw that the main problem is the terrible cost control of the production and insignificant payback of the technical problem. What’s more, the great debt with the

tiny cash profit makes the cash chain almost broke. However, in the Tesla Second Quarter 2018 Update in 2018 we saw a favorable turn.

3.1 The success in volume production by solved technology problems

“Over the past 12 months, we have overcome bottlenecks across various stages of the Model 3 manufacturing process.” --- Tesla Second Quarter 2018 Update (2018)

Table 7. Production per week of different models in different months of 2018

Production per week	2018.6	2018.7	2018.8	Total for Q2
Model 3	7000	5000	6000	18,449
Model X & Model S		2000		22,319
				53,393

Tesla built GA4 to help addressing the short-term issues with GA3, and it only accounts for approximately 3% of Model 3 cost (Tesla Second Quarter 2018 Update, 2018). What’s more, Model 3 quality continues to improve every month and is already on par with Model S and X.

“Expecting to produce 50-55k Model 3s in Q3; deliveries should exceed that.”

--- Tesla Second Quarter 2018 Update (2018)

From the report we saw that they successfully produced roughly 7,000 Model 3, Model S and Model X vehicles during the last week of June (“Tesla Second Quarter 2018 Update”, 2018), and they expected it to be 350,000 per year or more, which should enable Tesla to become sustainably profitable for the first time in our history. The future expectation is also very optimistic, they even 10,000 of production per week in the further quarter after August 2018.

3.2 Comparison on market share

What brings Tesla with the massive production is the great increased market share. “In July 2018, Model 3 not only had the #1 market share position in its segment in the US, it outsold all other mid-sized premium sedans combined, accounting for 52% of the segment overall.” (“Tesla Second Quarter 2018 Update”, 2018). The massive sales as a result brings large revenue with huge increase which can help to solve the debt.



Fig. 2. Model 3 market share vs. its competitors in US market

Table 8. Total automotive revenue

Revenues	Three Months Ended			Six Months Ended	
	June 30, 2018	March 31, 2018	June 30, 2017	June 30, 2018	June 30, 2017
Automotive sales	\$ 3,117,865	\$ 2,561,881	\$ 2,013,852	\$ 5,679,746	\$ 4,048,912
Automotive leasing	239,816	173,436	272,764	413,252	527,304
Total automotive revenue	3,357,681	2,735,317	2,286,616	6,092,998	4,576,216

4. Important event--merge

4.1 Special investment

On June 21, 2016, Tesla, Inc. announced on its blog that it had made an offer to acquire SolarCity Corporation. Tesla stated, we would be the world's only vertically integrated energy company offering end-to-end clean energy products to our customers. (Gilson, & Abbott, 2018)

4.2 Reasons

There are three possible reasons for merging with SolarCity. The first reason is that after the acquisition, The Tesla can form a complete closed loop from energy production to storage and transportation, and truly realize sustainable energy. This is very cost-friendly and provides a good foundation for the Tesla's future development. The second reason is that the acquisition of SolarCity will bring great financial benefits to the company.

Table 9. Calculated data of cash flows of SolarCity

SolarCity Cash Flow					
	2016	2015	2014	2013	2012
Net Income Cash Flow	(820.34M)	(768.82M)	(375.23M)	(151.72M)	(91.57M)
Net Cash from Operating	(508.77M)	(789.88M)	(217.84M)	174.51M	60.33M
Net Cash from Investment	(1.69B)	(1.73B)	(1.34B)	(729.89M)	(449.05M)
Net Cash from Financing	2.11B	2.39B	1.49B	972.38M	498.33M

According to the financial statement of SolarCity, although the company's own ability to generate cash is not good, and the ability to repay debt is not high, it is worth to notice that the company's financing ability is very strong. Therefore, Tesla believes that if it helps SolarCity repay debts, SolarCity can bring abundant capital resource and high profitable income. The third reason is that the acquisition will combine the core competitiveness of the two companies, which will give them a good market advantage at the same time.

4.3 Equations

So how will the acquisition affect both companies? I analyzed the financial statements of two companies to try to find this answer. (Since the acquisition took place in 2016, we mainly analyzed the company in 2016 and 2017.)

Table 10. Calculated data of Tesla cash flow

Tesla Cash Flow		
	2016	2017
Net Income Cash Flow	(1.56B)	(4.14B)
Net Cash from Operating	(123.83M)	(60.65M)
Net Cash from Investment	(1.21B)	(3.63B)
Net Cash from Financing	3.54B	3.63B

Table 11. Calculate ratio of Tesla cash flow

Some Ratio of Tesla Cash Flow		
	2016	2017
Operating/Total cash flow Ratio	0.079	0.015
Operating/Total Liability Ratio	0.00739	0.00263
Operating/Current Liability Ratio	0.021	0.0079

According to the Cash Flow of Tesla, I found that after the acquisition, its financing capacity did increase greatly, but the company's ability to generate cash declined, as operating accounts for a lower proportion in Cash Flow. Besides, it also shows that the company's financial stability has declined. From 2016 to 2017, the net cash flow is always negative, but 2017 is more serious, and we

can see that the main reason affects the cash flow is the external investment activities. The reduction of data in the second and third rows of the second table shows that both of the Tesla's ability to repay all debts and short-term debts are declining after the acquisition in 2016. In general, the acquisition has weakened the Tesla's ability to repay its debts.

Table 12. Calculated data of net profit margin ratio of Tesla

Tesla Corporation					
	2013	2014	2015	2016	2017
Debt-to-Asset	0.73	0.83	0.86	0.74	0.8
Asset turnover ratio	0	0.21	0.13	0.1	0.088
Net Profit margin Ratio	-0.162	-0.334	-0.95	-0.43	-0.87

According to the table above, the debt-to-asset ratio of tesla decreased significantly after the acquisition of SolarCity, indicating that the company's finance risk was reducing. Asset turnover ratio is always keeping down, but it falls significantly in 2017, which shows the company has less efficiency, and the assets used to generate sales become worse and worse. Net Profit margin ratio has been negative since 2013, indicating that tesla is not in an optimal position to earn profits. However, in the year of acquisition, decreasing ratio tends to slow down. This trend indicates that the acquisition has had a certain positive impact on the Tesla's profits.

Table 13. Calculated data of net profit margin ratio of SolarCity

SolarCity Corporation				
	2013	2014	2015	2016
Debt-to-Asset	0.12	0.12	0.16	0.16
Asset turnover ratio	0.019	0.021	0.02	0.031
Net Profit margin Ratio	-1.42	-0.71	-0.49	-3.26

For SolarCity, its finance risk has been increasing since 2015. The acquisition has not further worsened this risk and kept the value at the same level in 2015. At present, there is no obvious trend of decrease. Different from Tesla, Solarcity has been showing relatively good efficiency, and its ability to generate revenue is gradually increasing. In 2016, there has been a significant improvement. However, it is worth noting that the Net Profit margin ratio showed a sharp decline in 2016, which indicates that the company's Profit decreased significantly after the acquisition.

4.4 Equations

Let's look at the impact of acquisitions on stocks. For SolarCity, the stock price has been on an upward trend until 2014, which indicates that the company operates well. After 2015, the company's operation may gradually decline due to too much debt and insufficient solvency, so the stock price starts to decline. In 2016, when it is acquired, there shows an obvious rise, but then it still showed a downward trend.

Exhibit 3b SolarCity: Historical Share Price Performance



Exhibit 2b Tesla Share Price Performance

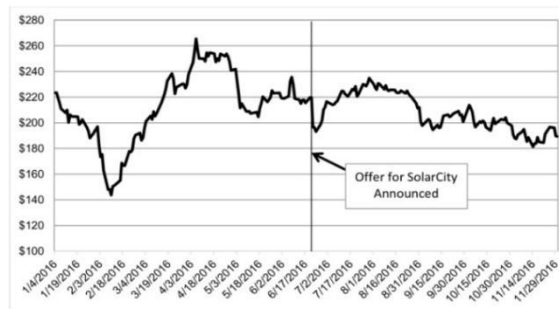


Figure. 3. SolarCity share price performance vs. Tesla share price performance

For the Tesla company, it operated in 2016 very well, so the stock price rising dramatically. However, on the date of offering for SolarCity announced, stock prices have a slump, illustrating

people holds a negative attitude on the bid. Then it is interesting to see that the share prices return to have a rising trend because some people begin to accept the acquisition of SolarCity. Finally, the slow decline of the stock shows that there are still many problems waiting to be solved for Tesla in the acquisition, which is not a very optimistic form at present.

5. Conclusion

According to our discussion in this article, we can see that the development of Tesla is in an unstable fluctuation during the latest 5 years, although its production has been enlarged at the same time, which is a positive side for the corporation. A true fact is that Tesla has to face the risks and the challenges from its dangerous cost control and the increasing long-term debt and negative income growth. But if the company can deal with these difficulties properly, it may turn to a more hopeful direction for development. The merge of SolarCity, the biggest event for Tesla recently, although caused some stock instability and led to more pressure in debt repayment for the short-term development, it created a vertical integration for the corporation, strengthened the financial ability and the market competitiveness, which will benefit Tesla uncountably for its long-term development.

To conclude, we could say that although there are still lots of problems affecting the financial health of the company have to be worked out, the corporation is showing its potential to develop to a giant in the future that cannot be ignored.

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